THE USE OF INSECTS AND OTHER INVERTE-.. BRATES AS FOOD BY THE NORTH AMERICAN INDIANS.

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It is perhaps not very generally known that insects and other invertebrates were used for economic purposes by the aborigines of North America. So far as our records show, the Indians east of the Mississippi never made any use of insects as food. Several reasons may be assigned for this, but the most important of these is the universal practice of agriculture south of the Great Lakes. In other regions where the economic conditions were regulated by the abundance of the game supply, periods of famine occurred, when recourse to insect food was not uncommon. The presence of permanent vegetable staples through agriculture, of course obviated this necessity, so that the absence of such customs occasioned an entirely different psychological attitude towards insect food in the East.

Concerning the Menomini, a well-known Central Algonkin tribe, for instance, we read:* "The Menomini Indians are not addicted to eating all kinds of reptiles, insects and other loathsome food, as was common to many of the tribes of the great basin and of California. This form of diet may result from having always lived in a country where game, fish, and small fruits were found in greater or lesser abundance, and the evident relish with which we find the so-called Diggers, the Walapai, and others, devour grasshoppers, dried lizards, beef entrails, and bread made of grass seed mixed with crushed larvæ of flies, would appear as disgusting to the Menomini as the Caucasian."

West of the Mississippi we find insects used as food by tribes of the Algonkian, Siouan, Shoshonean, Athabascan, Pujunan, Pinan, and Shastan stocks, at least. The Assiniboine, the most northerly located of the Siouan tribes, are said to have used pulverized insects dried in

* Hoffman, The Menomini, 14th Annual Report, Bureau of American Ethnology, p. 287.

the sun for food in cases of necessity.* De Smet also says: "I have seen the Cheyennes, Snakes, Utes, etc., eat vermin off each other by the fistfull. Often great chiefs, while they talked to me, would pull off their shirts in my presence without ceremony, and while they chatted would amuse themselves with carrying on this branch of the chase in the seams. As fast as they dislodged the game, they crunched it with as much relish as more civilized mouths crack almonds and hazel-nuts or the claws of crabs and crawfishes."†

De Smet‡ states of these people: "Add to this, by way of an exquisite dessert, an immense dish of crusts, composed of pulverized ants, grasshoppers and locusts, that had been dried in the sun, and you may then be able to form some idea of Assiniboine luxury."

In the desolate forests and barren grounds, the natives, mostly of Athabascan stock, make use of insect food in a different manner. Russell§ says of the Dog Ribs: "A gadfly (thought to be *Hypoderma lineata* by Dr. Riley, but in the absence of specimens the species is uncertain) deposits its eggs in the back of the caribou, in some individuals to the number of several hundred, which renders the skin utterly useless for leather. The grubs were well developed in the latter part of April when I left the barren ground. The Indians did not remove them from pieces of meat destined for the kettle." Hearne|| remarks of the same people: "The Indians, however, never could persuade me to eat the warbles, of which some of them are remarkably fond, especially the children. They are always eaten raw and alive out of the skin and are said by those who like them to be as fine as gooseberries."

The Shoshone proper, and other tribes of the same stock dwelling on the plains were not averse to entomological numbers on their bill of fare. "Among other things the former are said to have relished serpents, lizards, grasshoppers, mice, crickets and pismires which

* Lowie, The Assiniboine, Anthropological Papers of the American Museum of Natural History, Vol. IV, Part I, p. 12.

† De Smet, Life, Letters and Travels, etc., Vol. III, p. 1002.

‡ Father De Smet's Life and Travels among the North American Indians (Chittenden and Richardson), p. 1032.

§ Frank Russell, Explorations in the Far North, being the report of an expedition under the auspices of the University of Iowa, during the years, 1892, 1893 and 1894, p. 228.

|| Hearne, Journal, p. 316.

were thrown into a large tray filled with burning cinders, in which they were tossed about until roasted. Roasted ants were preserved in bags for future consumption."*

De Smet† avers that "The Soshoco (probably a Shoshonean tribe) who subsists chiefly on grasshoppers and ants, is miserable, lean, weak and badly clothed."

"The principal portion of the Shoshoco territory is covered with wormwood, and other species of artemesia, in which the grasshoppers swarm by myriads; these parts are consequently most frequented by this tribe. When they are sufficiently numerous, they hunt together. They begin by digging a hole, ten or twelve feet in diameter, by four or five deep; then, armed with long branches of artemesia, they surround a field of four or five acres more or less, according to the number of persons who are engaged in it. They stand about twenty feet apart and their whole work is to beat the ground, so as to frighten up the grasshoppers and make them bound forward. They chase them toward the center by degrees—that is, into the hole prepared for their reception. Their number is so considerable that frequently three or four acres furnish grasshoppers sufficient to fill the reservoir or hole. The Soshocos stay in that place as long as this sort of provision lasts. Some eat the grasshoppers in soup, or boiled; others crush them, and make a kind of paste from them which they dry in the sun or before the fire: others eat them *en appalas*—that is, they make pointed rods and string the largest ones on them; afterwards these rods are fixed in the ground before the fire, and, as they become roasted, the poor Soshocos regale themselves until the whole are devoured."

The Maidu, a Pujunan tribe of California, according to Dixon‡ were also insectivorous to some extent. "Grasshoppers and locusts were eaten eagerly when they were to be had. The usual method of gathering them was to dig a large, shallow pit, in some meadow or flat, and then, by setting fire to the grass on all sides, to drive the insects into the pit. Their wings being burned off by the flames,

* Lowie, The Northern Shoshone, Anthropological Papers of the American Museum of Natural History, Vol. II, Part III, p. 183.

† Father De Smet's Life and Travels among the North American Indians (Chittenden and Richardson), p. 1032.

‡ Bulletin American Museum of Natural History, Volume XVII, Part III, p. 120.

they were helpless, and were thus collected by the bushel. They were then dried as they were. Thus prepared, they were kept for winter food, and were eaten either dry and uncooked, or slightly roasted."

Of the Shasta, a California tribe of Shastan stock, Dixon* also remarks: "Angle worms, grasshoppers, and locusts, do not seem to have been eaten to any extent."

In regard to the Pima† (Piman) of southern Arizona we note under the head of "Ma'kûm": "These unidentified worms (?) are plentiful when a rainy season insures a heavy crop of desert plants. They are gathered in large quantities, their heads pulled off, and intestines removed. The women declare that their hands swell and become sore if they come in contact with the skin of the worms. The worms are then put into cooking pots lined with branches of salt-bush and boiled. The skins are braided together while yet soft and dried a day or two in the sun. The dry and brittle sticks are eaten at any time without further preparation."

It would appear from the foregoing accounts that the use of insects as food by the North American aborigines was restricted to that portion west of the Mississippi and was in vogue particularly among the Indians towards the Pacific slope. It is possible that the eastern Cree, Naskapi and Montagnais, who like the northern Athabascans belong to the sub-arctic culture, also eat the *Cuterebra* grubs which are found in the caribou, but no notes seem to have been obtained by the writer or others on the subject. The eastern Cree and Ojibway often kill lice, caught on their persons, by cracking them with their teeth, but I have never observed that they ate them afterwards, although I have been assured that this was the case.

* *Ibid.*, Vol. VIII, p. 245.

† Frank Russell, The Pima Indians, 26th Annual Report of the Bureau of American Ethnology, p. 81.